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ABSTRACT

That semantics interacts with syntax has been shown in psycholinguistic investigations of the processing of language by adults and of the acquisition of language by children. The few programs for language assessment and therapy that have attempted to incorporate semantic considerations have included some misunderstandings of the psycholinguistic basis. In an attempt to remedy those misunderstandings, some general recommendations are presented, and some of the specific misunderstandings in the program developed by MacDonald (1976) are pointed out. The general recommendations include the following: (1) If remedial programs are to be based on the normal language acquisition process in which syntax and semantics interact, that precludes basing remedial programs on any abstract syntactical model of an adult language user and the exclusive use of techniques for instilling desired language patterns that are void of meaning. (2) If the goal of remedial programs becomes the establishment of communication, measures of comprehension and intent would be at least as important as verbal performance. (3) If situational or contextual factors are recognized as relevant to the child's comprehension and intent, the clinician would use the linguistic and non-linguistic environment in interpreting and interacting with the child. (Author/CFM)

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The Role of Semantics in the Application of Psycholinguistics to Language Assessment and Therapy.

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Abstract

That semantics plays an important role and interacts with syntax has been shown in psycholinguistic investigations of the processing of language by adults and of the acquisition of language by children. The few programs for language assessment and therapy that have attempted to incorporate semantic considerations have included some misunderstandings of the psycholinguistic basis. I will attempt to remedy those misunderstandings by presenting some general recommendations as well as pointing out some of the specific misunderstandings in the program developed by MacDonald (1975). The general recommendations include the following: if remedial programs are to be based on the normal language acquisition process in which syntax and semantics interact, that precludes basing remedial programs on any abstract syntactical model of an adult language user and the exclusive use of techniques for instilling desired language patterns that are void of meaning; if the goal of remedial programs becomes the establishment of communication, measures of comprehension and intent would be at least as important as verbal performance; if situational or contextual factors are recognized as relevant to the child's comprehension and intent, the clinician would use the linguistic and nonlinguistic environment in interpreting and interacting with the child.

MacDonald (1975) states a rationale for the Environmental Language Intervention Strategy that coincides well with the aforementioned recommendation. Unfortunately, the program also includes the conflicting goal of increasing the mean length of utterance and the frequency of occurrence of certain forms. Further, the methods used include imitation.

Thus, what has changed is what is to be imitated, i.e., two-word combinations that occur early in the language acquisition of normal children. In MacDonald's analysis, all sequences longer than two words are broken down into two-word units and counted as such. This is a particularly unfortunate distortion in that some combinations such as Negation + X and Introducer + X may be unique to early stages of language acquisition and may not occur in longer combinations, but they are considered as having equal psychological reality to components of longer utterances such as Agent + Action and Action + Object. In a number of other ways, the program incorporates semantic considerations more in intent than in actuality.

The Role of Semantics in the Application of Psycholinguistics to Language Assessment and Therapy

The arbitrary separation between syntax and semantics and the central role given to syntax in transformational generative grammar (Chomsky, 1957, 1965) have been problematic for psycholinguists interested in testing the psychological reality of linguistic theory as a model of the lnaguage user's competence. That semantics plays an important role and interacts with syntax has been shown in psycholinguistic investigations of the processing of language by adults and of the acquisition of language by children. In this paper, I will outline the role of semantics in psycholinguistics and discuss the increasing trend for language assessment and therapy to incorporate semantic considerations. Unfortunately, the few language programs that have attempted to incorporate semantic considerations have included some misunderstandings of the psycholinguistic basis. I will attempt to remedy those misunderstandings by presenting some general recommendations as well as pointing out some of the misunderstandings in the program that comes closest to including semantic considerations (MacDonald, 1975).

The saliency of semantics over syntax is well documented in psycholinguistic investigations and theorizing. Sachs (1967) found that people remembered the semantic content of what they had read when they had long forgotten what syntactic form the information had been presented in, e.g., an active or a passive sentence. Thus, encoding into long term memory is assumed to occur on a semantic basis and experiments based on semantic memory are beginning to proliferate (Collins & Quillian, 1970). As well as the evidence that information is stored according to its semantic content, the processing of language is predominantly semantic under at

least two conditions: firstly, when the syntactic structure is difficult to process, and secondly, when rule violations occur in the syntax of the perceived utterance. The first situation necessitates the elimination of semantic cues in testing the processing of complex syntactic structures such as self-embedding (Blaubergs & Braine, 1974; Blaubergs, 1976). The second situation is the successful processing, i.e., the interpretability of linguistically deviant sentences. Such sentences overlap with metaphors, and rely in great extent on context for their interpretation (Blaubergs & Jarrett, 1976). Thus, syntax is less salient than semantics for language users in that (a) it seldom is stored in long term memory, (b) it may be bypassed in the interpretation of sentences by reliance on semantic cues and context (c) syntactic rule violations may not inhibit interpretation.

However, adults do process syntactic information, e.g., in Sachs (1967) the syntactic forms of the utterance was remembered after short intervals, and in the Blaubergs and Braine (1974) study, self-embedded structures were understood when short term memory limitations did not interfere.

In the acquisition of language, another form of interaction between syntax and semantics has been postulated by a number of theorists, i.e., that semantic understanding precedes syntactic processing and may aid in the acquisition of syntactic structures which may later aid in the processing of novel or unusual information (e.g., MacNamara, 1972). An experimental demonstration of this is reported by Hutson (1973). She asked preschoolers to interpret sentences that were either probable or improbable, e.g. The mother washes the baby vs. The baby washes the mother. The

sentences were also presented in either active or passive forms. The child, as in many comprehension studies, was asked to act out the sentence using the available toys. For the active sentences, there was no significant difference between the probable and improbable sentences indicating that the syntactic form of these sentences was being processed. For the passive sentences both three- and four-year olds did significantly worse on the improbable sentences, indicating that the passive construction was not fully acquired and still required support from the semantic situation.

The analysis of the one-word utterances of infants as holophrases, e.g. interpreting milk as meaning something like Mommy, give me some milk right now, also supports the notion of early semantic processing. Bloom (1970) and Antinucci and Parisi (1973) have made some interesting observations on the varying meanings that might be attributable to the same utterances made by a child in different situations. Only when the child can process the syntax abstractly could Chomsky's famous sentence Colorless green ideas sleep furiously be judged as syntactically correct, but semantically anomalous. However, such judgments may be purely arbitrary and not predictive of the possibility of interpretation. If the role of semantics in both processing and acquisition is considered, it may be that a cognitive strategy of searching for meaning as suggested in Blaubergs & Jarrett (1976) may explain the findings under discussion.

Linguistic theory since Chomsky has increasingly included semantics in the underlying hypothetical structure of language and has provided a basis for analyses of normal child language acquisition. Fillmore's (1968) case grammar has been used to describe stages in language acquisition, e.g., early

utterances might express notions such as Agent and Verb, as in Mommy open or Verb and Locative as in Sit chair. Later additional cases would be included in a single sentence. Also the modality of the proposition, e.g., the tense or aspect of the verb, is expressed as a later development.

Some general recommendations for language intervention programs can be derived from the foregoing discussion of the importance of semantics in psycholinguistic theory. If remedial programs are to be based on the normal language acquisition process, the interaction between syntax and semantics must be recognized. Such a recognition would preclude both basing remedial programs on any abstract syntactical model of an adult language user, and the exclusive use of techniques for instilling desired language patterns that are void of meaning, such as imitation. Secondly, the goal of remedial programs would become the establishment of communication, so that comprehension and intent would be at least as important as verbal performance. Thirdly, situational or contextual factors, i.e., the linguistic and non-linguistic environment would be recognized as relevant to the child's comprehension and intent and be used by the clinician in interpreting and interacting with the child.

Some programs are diagnosing and evaluating children with language delay or impairment as opposed to "speech disorders". Those such as the LASS procedure (Engler, Hannah & Longhurst, 1973) and Bar's (1971) sentence repetition procedure are based directly on Chomsky's grammar and thus are limited to syntax. The information that such programs provide about the child's syntactic difficulties may well be useful, but the procedures that are then used in remediation will likely be purely

syntactic. Chomsky's grammar was originally limited to syntax for ease of analysis, but provides an inadequate model of a language user as semantic understanding may both precede and supercede syntactic processing. Thus, although syntactically-based programs may appear to be helpful in that measures of progress are quantifiable, the progress achieved is to a large extent artificial. In programs based on syntax, pattern drills are typically used. It is certain that learning can occur via drills, e.g., patterns can be noted even in nonsense material (Braine, 1966), but the learning that occurs is indicative only of mastery of a ritual such as the one that begins with How are you? Thus, a pattern of behavior has been produced rather than an internalized rule which will extend productively to other situations and which will be used to express meaning. Thus, rather than aiming to achieve a change in verbal performance such as an increase in the mean length of utterance or in the frequency of certain syntactic patterns, which are changes that can occur without any change in underlying competence and without using language to express meaning, preliminary efforts should be directed towards establishing the communicative use of language.

The recommendation based on the role of the context in producing and understanding language may be combined with Cazden's (1972) finding that social interchange based on the child's own previous utterances may be the most facilitative form of interaction. If the child is producing some utterances rather than showing no language, Leonard (1973) suggests that the use of techniques based on Cazden's findings could effectively be employed. Similarly, Miller and Yoder's (1972) program deals with

context to some extent. Although it is syntax-based, as is Bloom's (1970) language acquisition analysis that it draws from, it does deal with establishing comprehension as well as production, and the semantic intent of the utterance in the early stages is considered without requiring complex syntactic expression.

The most intensive effort to include semantic considerations has been made by MacDonald and co-workers at the Nisonger Center in developing the Environmental Language Inventory as a diagnostic tool, and the Environmental Language Intervention Strategy as a remediation program. The stated rationale coincides well with the recommendations made here. For example, the importance of context is recognized by MacDonald and Blott (1975): "procedures must invoke the environmental context of an utterance if they are to adequately diagnose or teach the grammar underlying that utterance"... and "by utilizing the linguistic and nonlinguistic environment of an utterance, the strategy recognizes the semantic component of that utterance". MacDonald (1975) also formulates a goal of establishing communication: "the primary objective of language intervention is the establishment of a social communication" and "the focus on 'communication' rather than 'speech' or 'language' is the essential feature of the model". And finally, the model attempts to utilize information about the normal language acquisition process, e.g., "adequate diagnosis would sample those language structures occurring in early normal development" (MacDonald & Blott, 1975) and "if social agents play an essential role in the process of normal language development, then those same social agents may be essential for valid language treatment of

delayed children" (MacDonald, 1975). Unfortunately, both ELI and ELIS also include the traditional goals of increasing mean length of utterance and the frequency of occurrence of what the authors label "semantic-grammatical rules". Also, the methods used include those that contradict what is known about the process of normal language acquisition, i.e., imitation. What has changed is what is to be imitated. However, the most unfortunate misunderstanding arises in the notion that what the authors call "semantic-grammatical rules" comprise what is to be imitated and generalized. These "rules" are actually two-word combinations such as discussed by Brown (1973) and adaptations based in part on Fillmore's (1968) case grammar. Firstly, if one takes into account the observations of Antinucci and Parisi (1973), what MacDonald is calling a rule is more properly a description of a two-word utterance. Many such two-word combinations, in their surface form, do not express all of the semantic information since some is provided by the context. Particularly, three of the proposed rules, Agent + Action, Action + Object, and Agent + Object, may all have an underlying form of Agent + Action + Object. However, in MacDonald's analysis, all sequences longer than two words are broken down into two-word units and counted as such. This is a particularly unfortunate distortion since some of the "rules" such as Negation + X and Introducer + X, may not occur in longer combinations and may be unique to early stages of language acquisition, yet they are considered as having equal psychological reality as the others. To measure mean length of utterance and correlate it to these rules is a misconstrual of the fact that these are found as two-word combinations in normal children. Thus, although the authors, unlike those basing

their desired grammar on an adult model, are attempting to include normal language acquisition data, they have assumed that a child's grammar develops by combinations of units found at the two-word stage, and are attempting to instill these patterns.

Lucas (1976) noted a number of other problems in using and interpreting the Environmental Language Inventory, e.g., subdividing longer utterances into two-word combinations distorts the relationship between utterance and meaning. When It's no more TV is broken down into It's TV (Introducer + X) and No TV (Negation + X) and More TV (Modifier + Head, recurrence), it becomes clear that the child did not intend the separate meanings but the combination. Problems also arise in using the environment for interpreting the child's utterance. A glaring example of the inability to interpret the child's utterance according to the cues of the situation is apparent in the test for the Agent + Object rule. The tester is to put a cup to a doll's mouth and say "Tell me what she did". The children, quite logically, all replied with an action constituent, e.g., drink, as opposed to the desired doll cup (Lucas, 1976).

In conclusion, although a few programs are attempting to incorporate semantic considerations, they are doing so more in intent than in actuality. Although psycholinguists making recommendations to speech pathologists must recognize that since intervention is required, the normal acquisition process will be deviated from and special techniques may be required, particularly in extreme cases. Speech pathologists who are attempting to include semantic considerations need to better understand psycholinguistic theory so as to better reconcile thier stated goals with the programs based on those goals. Communication between the fields needs to work in both directions.

References

Antinucci, F. & Parisi, D. (1973) Early language acquisition: a model and some data. In C. A. Ferguson & D. I. Slobin, Eds., Studies of child language development. New York: Holt, Rinehart & Winston.

Berry-Luterman, L. & Bar, A. (1971) The diagnostic significance of sentence repetition for language-impaired children. Journal of Speech Hearing Disorders, 36, 29-39.

Blaubergs, M. S. (1976) Encoding self-embedded sentences. Language and Speech, 19, 1-8.

Blaubergs, M. S. & Braine, M. D. S. (1974) Short-term memory limitations on decoding self-embedded sentences. Journal of Experimental Psychology, 102, 745-748.

Blaubergs, M. S. & Jarrett, K. (1976) Semantic anomaly: linguists' intuitions vs. interpretation in context. Paper presented at the fifth annual Linguistics Symposium, University of Wisconsin, Milwaukee, March 28.

Bloom, L. (1970) Language development: form and function in emerging grammar. Cambridge: MIT.

Braine, M. D. S. (1966) Learning the positions of words relative to a marker element. Journal of Experimental Psychology, 72, 532-540.

Brown, R. (1973) A first language: The early stages. Cambridge, Mass.: Harvard University Press.

Cazden, C. B. (1972) Child language and education. New York: Holt, Rinehart, & Winston.

Chomsky, N. (1957) Syntactic structures. The Hague: Mouton.

Chomsky, N. (1965) Aspects of the theory of syntax. Cambridge: MIT.

Collins, A. M. & Quillian, M. R. (1970) Experiments on semantic memory and language comprehension. In L. W. Gregg (Ed.), Cognition in learning and memory. New York: Wiley.

Engler, L. F., Hannah, E., & Longhurst, T. M. (1973) Linguistic analysis of speech samples: a practical guide for clinicians. Journal of Speech Hearing Disorders, 38, 192-204.

Fillmore, C. J. (1968) The case for case. In E. Bach and R. T. Harms (Eds.), Universals in linguistic theory. New York: Holt, Rinehart & Winston.

Hutson, B. A. (1973) How abstract is a young child's knowledge of syntax? Paper presented at the meeting of the American Psychological Association, Montreal, Canada, August.

Ingram, D. (1971) Transitivity in child language. Language, 47, 888-910.

Leonard, L. B. (1973) Teaching by the rules. Journal of Speech Hearing Disorders, 38, 174-183.

Lucas, E. (1976) Critique of the Environmental Language Inventory. Unpublished manuscript, University of Georgia.

MacDonald, J. (1975) Environmental language intervention: programs for establishing initial communication in handicapped children. In F. Withrow and C. Nygren (Eds.), Language and the handicapped learner: curricula, programs, and media. Columbus: Merrill Publishing Co.

MacDonald, J. & Blott, J. (1974) Environmental language intervention: a rationale for a diagnostic and training strategy through rules, context, and generalization. Journal of Speech and Hearing Disorders, 39, 244-256.

MacNamara, J. (1972) Cognitive basis of language learning in infants. Psychological Review, 79, 1-13.

Miller, J. F. & Yoder, D. E. (1972) An ontogenetic language teaching strategy for retarded children. In R. L. Schiefelbusch and L. L. Lloyd (Eds.), Language perspectives - acquisition, retardation, and intervention. Baltimore: University Park Press.

Sachs, J. S. (1967) Recognition memory for syntactic and semantic aspects of connected discourse. Perception and Psychophysics, 2, 437-442.